Biochemistry is an interdisciplinary major that is administered jointly by the Biology and Chemistry Departments. Students interested in the biochemistry major may consult Prof. Eric Folker (578 Higgins) or Prof. Rebecca Dunn (411 Higgins).

## Required Courses

### BIOLOGY

- ☐ BIOL 2000 Molecules & Cells *(fall/spring)*
- ☐ BIOL 2010 Ecology & Evolution *(fall/spring)* **OR** BIOL 3030 Introduction to Physiology *(fall)* **OR** BIOL 3300 Human Physiology *(spring)*
- ☐ BIOL 2040 Investigations in Molecular Cell Biology *(fall/spring)*
- ☐ One course in **cell biology** from the following list
  - BIOL 3040 Cell Biology *(fall/spring)*
  - BIOL 3090 Foundations of Microbiology *(fall)*
  - BIOL 4140 Microbiology *(spring)*
- ☐ One course in **genetics or genomics** from the following list
  - BIOL 3050 Genetics *(fall/spring)*
  - BIOL 3060 Introduction to Genetics *(summer only)*
  - BIOL 3150 Introduction to Genomics *(spring)*

*Biochemistry Majors who have a five on the AP Biology exam in their senior year may elect to bypass the 2000 lecture series (BIOL 2000 & BIOL 2010). These students will begin the major with BIOL 3040 Cell Biology and then take six credits of additional biology courses, level 3000 or above.*

### CHEMISTRY COURSES

- ☐ CHEM1109/1111 General Chemistry I with Lab (or CHEM1117/1119) *(fall)*
- ☐ CHEM1110/1112 General Chemistry II with Lab (or CHEM1118/1120) *(spring)*
- ☐ CHEM2231/2233 Organic Chemistry I with Lab (or CHEM2241) *(fall)*
- ☐ CHEM2232/2234 Organic Chemistry II with Lab (or CHEM2242) *(spring)*
- ☐ CHEM 3351/3353 Analytical Chemistry/Lab *(fall)*
- ☐ CHEM 4473 Physical Chem/Biochem Majors *(spring)*

### BIOCHEMISTRY COURSES

**Option 1 (Biology) – may be taken in any order:**
- ☐ BIOL4350 Biological Chemistry *(fall, spring)*
  - or CHEM 4461 Biochemistry 1 *(fall)*
- ☐ BIOL4400 Molecular Biology *(spring only)*

**Option 2 (Chemistry) – to be taken in sequence:**
- ☐ CHEM4461 Biochemistry 1 *(fall)*
- ☐ CHEM4462 Biochemistry 2 *(spring)*

### MATHEMATICS COURSES

- ☐ Calculus II: MATH 1101, MATH 1103 or MATH 1105 *(if credit through AP Calc BC, take another advanced math course)*
## PHYSICS COURSES

- □ PHYS 2100 Intro to Physics I with Lab (calc-based)
- □ PHYS 2101 Intro to Physics II with Lab (calc-based)

### ADVANCED ELECTIVES (2 courses, minimum of 5 credits total)

*Students planning to pursue a science career are urged to become involved in Undergraduate Research or take an Advanced Laboratory course.*

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<tr>
<td><strong>Lecture/Seminar Options:</strong></td>
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<td>□ Virology (BIOL 4090)</td>
<td>□ Metabolic Regulation and Human Disease (BIOL 4290)</td>
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<td>□ Inflammation and Disease (BIOL 4120)</td>
<td>□ Developmental Biology (BIOL 4320)</td>
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<td>□ Introduction to Bioinformatics (BIOL 4200)</td>
<td>□ Cancer Biology (BIOL 4510)</td>
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<td>□ Nobel Winning Res in Medicine or Physio (BIOL 5010)</td>
<td>□ Principles of Immunology (BIOL 4570)</td>
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<td>□ Recombinant DNA Technology (BIOL 5060)</td>
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<td>□ Topics in Developmental Biology (BIOL 5040)</td>
<td>□ Microbial Community Ecology (BIOL 5071)</td>
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<td>□ Environmental Disruptors of Development (BIOL 5130)</td>
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<td>□ Seminar in Cellular Dynamics (BIOL 5180)</td>
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<td>□ Cancer as a Metabolic Disease (BIOL 5420)</td>
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<td>□ Biology of the Nucleus (BIOL 5700)</td>
<td>□ Immunity and Infectious Disease (BIOL 5230)</td>
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<td>□ NMR Spectroscopy (CHEM 5539)</td>
<td>□ Cancer as a Metabolic Disease (BIOL 5420)</td>
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<td>□ Principles of Chemical Biology (CHEM 5560)</td>
<td>□ Genomics &amp; Personalized Medicine (BIOL 5430)</td>
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**Advanced Labs Options:**

- □ Research in Evolutionary Genomics (BIOL4802)
- □ Research in Molecular Biology Lab (BIOL 4830)
- □ Investigations in Cellular Re-Programming (BIOL 4890)
- □ Two semesters of Undergraduate Research

- □ Modern Lab Techniques of Photocontrolled Radical Polymerization (CHEM 4450)
- □ Synthetic Biology: at the interface of Biology, Chemistry, and Engineering (CHEM 5513)
- □ Magnetic Resonance in Biology (CHEM 5540)
- □ Principles and Methods in Biophysical Chemistry (CHEM5561)

**Advanced Labs Options:**

- □ Research in Molecular Biology Lab (BIOL 4830)
- □ Research in Molecular Genetics Lab (BIOL 4870)
- □ Two semesters of Undergraduate Research